United States Geological Survey
Geospatial Information Response
Standard Operating Procedures
May 20, 2013

Executive Summary

The Geospatial Information Response Team (GIRT) Standard Operating Procedures (SOP) contains the GIRT organizational structure, activation procedures, roles and responsibilities, operating procedures, reporting requirements, and business processes for acquiring and providing geospatial information in supporting emergency response requests.

1. Introduction

The GIRT is comprised of numerous components within the United States Geological Survey (USGS). The GIRT roles are to coordinate, provide and/or facilitate access to the very latest geospatial information available from USGS and plan remote sensing requirements, capabilities, and operations in response to a natural or man-made disaster (e.g. hurricane, earthquake, tornado, and floods).

1.1 Purpose

The purpose of this SOP is to define the organizational structure, activation process, the member roles and responsibilities, operational functions and procedures, reporting requirements and deactivation process in supporting natural hazards events.

1.2 Scope

The roles, responsibilities, processes and procedures outlined in this document apply to the GIRT when activated by the GIRT Chair or USGS Hazard Response Executive Committee (HREC).

1.3 GIRT Mission and Organizational Structure

1.3.1 Mission Statement

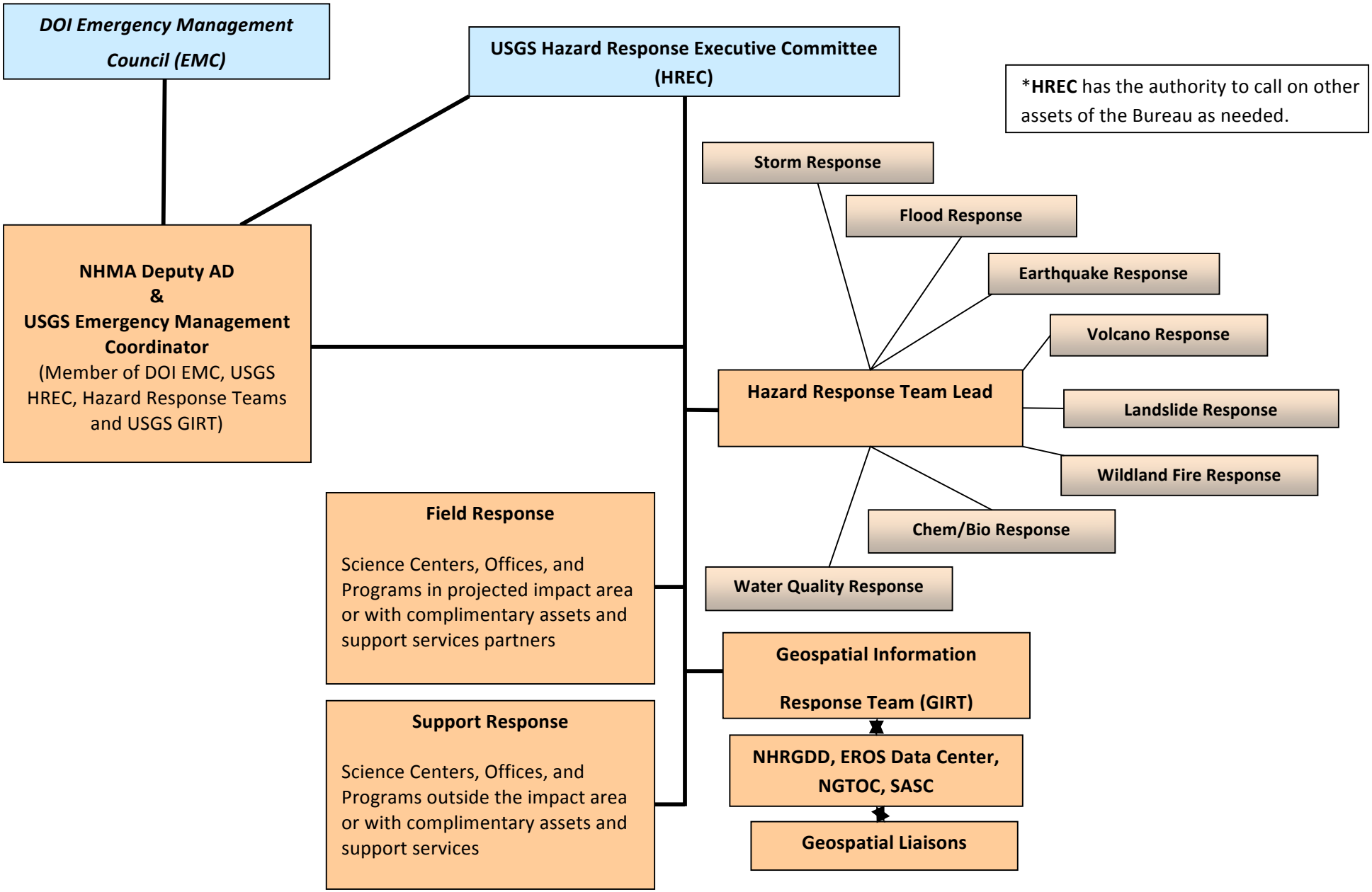
The GIRT provides access to the most current, high resolution geographic data/services, and Geospatial Liaison support during emergency events.

1.3.2 Organization

The National Geospatial Program (NGP) Natural Hazard Response Geospatial Data Delivery (NHRGDD) Office serves as the GIRT Chair and is responsible for coordinating with the USGS HREC, other discipline-level emergency response teams, the Geospatial Liaisons Network, science centers, and program leads (fig. 1). In the event the GIRT is activated, a leadership succession plan is conveyed to its members to ensure continuity of operations during the activation, including weekend and extended hours.

USGS Emergency Response Teams

Figure 1



1.3.3 GIRT Membership

Members of the GIRT are appointed by the relevant senior manager with approval by the USGS Deputy Director and Associate Director for Natural Hazards. Team membership includes, but is not limited to, the following organizational areas and depending on the response, more than one representative may be required:

-National Geospatial Program;
-Bureau Emergency Management Coordinator;
-Earth Resources Observations and Science (EROS) Center;
-National Geospatial Technical Operations Center;
-Land Remote Sensing (LRS) Program Office;
-Geographic Science Centers;
-National Wetlands Research Center (NWRC) Science Response Vehicle (SRV) Coordinator;
-Regional Director's Offices;
-Geospatial Liaisons (in or adjacent to, the area where the response is required), Hazards Program Coordinator(s)
-Special Applications Science Center

Other participants are added to the GIRT for a given response depending upon the type of hazard and response required to fulfill mission requirements.

2. GIRT Activation and Deactivation

The GIRT is activated by either the GIRT Chair or at the request of the HREC in response to an emergency event. The GIRT will remain active and act as the main geospatial information/remote sensing focal point for the duration of the emergency or as long as geospatial resources are needed for response, recovery, and scientific analysis. The GIRT Chair will determine when the team will deactivate based on customer needs and HREC recommendations.

2.1 GIRT Chair

The NGP NHRGDD Office Chief serves as the GIRT Chair and coordinates with the USGS HREC, hazard response teams, Geospatial Liaison Network, science centers, and program leads. During activation the GIRT chairperson will coordinate routine meetings with its core and ad hoc members to define emergency situational awareness, ingest geospatial requirements, and ensure activities are communicated to reduce duplication of effort. The GIRT may activate for more than one emergency. Member representation will reflect the type and location of emergency. The GIRT chair provides updates during hazards response team calls and reports out to the HREC.

2.2 Hazard Response Executive Committee

The USGS HREC provides executive direction, oversight, and support to USGS managers in responding to major hazard events.

3. GIRT Roles and Responsibilities

3.1 GIRT Coordination

GIRT members coordinate between USGS components, other Federal agencies, state and local authorities to identify geospatial data requirements, acquire geospatial information and ensure the rapid provision of geospatial information for effective response by emergency responders during an emergency. In addition, the GIRT ensures that timely and relevant geospatial data are available for use by emergency responders, land and resource managers, and for scientific analysis.

3.1.1 Situational Awareness

Individual GIRT members will provide situational awareness and updates on geospatial data requirements for their respective geographic area to the team to assist in requirements gathering efforts.

3.1.2 Requirements

Geospatial data requirements are identified, brought forward to the team, discussed and acted upon accordingly. (See Appendix A.)

3.1.3 Data Delivery

The GIRT will utilize pre-established methods to deliver imagery and geospatial products to the customer. The team will determine the most appropriate format and delivery method for ingestion/use by the customer.

3.2 Emergency Team Coordination

Members of the GIRT share information regarding the current status of an event based on their geographic area of responsibility and subject matter expertise.

3.2.1 USGS Emergency Management Coordinator (EMC)

The USGS EMC will provide the Department of the Interior (DOI) and the Natural Hazard Mission Area (NHMA) overview of the situation. DOI Bureau and overall USGS science needs will also be highlighted.

3.2.2 USGS Hazard Team leads

Based on the event, USGS Hazard Team leads coordinate their respective teams and will provide a synopsis of the response for the event, an event update and an overview of the USGS science response. Specific science needs will be discussed.

3.2.3 Regional Director's Offices

Regional Director's or their staff may participate on the team to obtain situational awareness and/or share information from the region.

3.2.4 Liaisons

USGS liaisons representing the impacted area will provide an update of the coordination activities with USGS responders and Federal, State, and Local partners supporting the event.

3.3 Geospatial and Remote Sensing Data Coordination

The GIRT has several components that will assist and coordinate the availability and distribution of geospatial products and remotely sensed imagery. Each of these components will be represented by at least one participant on the GIRT call, in order to provide timely status and information as needed for the GIRT membership.

3.3.1 Natural Hazards Response and Geospatial Data Delivery (NGRGDD)

The NHRGDD is the Bureau Geospatial coordination focal point during an emergency/natural hazard event. It works in conjunction with DHS (FEMA), NGA, NGB and NORTHCOM, NOAA, EPA, and USDA. This element can facilitate/expedite geospatial data delivery, acquire and deliver emergency imagery; its cadre can develop and distribute custom time-sensitive products.

3.3.2 National Geospatial Technical Operations Center (NGTOC)

NGTOC provides essential support for the acquisition, management and distribution of trusted geospatial data, products, and services. The NGTOC component of the GIRT specializes in "bulk" state wide or multiple-state geospatial data delivery.

3.3.3 Land Remote Sensing (LRS)

The LRS Program provides coordination and access to US- and internationally based sources of remotely sensed imagery. These datasets can provide critical information to assess, map, and monitor the geographic extent and impact of the disaster.

3.3.4 Hazards Data Distribution System (HDDS)

The HDDS is an event-based collection of pre- and post-event remotely sensed imagery, products, and documents that are provided for an emergency event response from a variety of sources. The HDDS is operated and maintained at USGS/EROS, and represented on the GIRT by the EROS Disaster Response Coordinators.

3.3.5 Geospatial Liaison Network

The GIRT will leverage the USGS Geospatial Liaison network to coordinate with state and local government officials, as well as other Federal agencies in the affected states or regions. The Liaisons will coordinate the provisioning and deployment of USGS geospatial data, products, services, and equipment, support emergency operations/homeland security activities, and as requested, serve on-site at specific Federal agencies to ensure strong USGS science and emergency operation linkages.

3.3.6 Special Applications Science Center (SASC)

The GIRT will leverage partnerships with the USGS SASC by collecting information on available products and SASC capabilities, and communicating relevant data or product requirements as necessary.

3.3.7 Science Response Vehicle (SRV)

The SRV is a self-contained mobile geospatial laboratory that provides real-time on-scene capability for on-demand geospatial support to first responders and other on-scene personnel and agencies. The SRV

has the capability to facilitate the development and transfer of geospatial information by the GIRT and other government agencies.

3.3.8 Federal Partners

The GIRT will leverage partnerships with the Department of Homeland Security (DHS), National Geospatial- Intelligence Agency (NGA), and Northern Command (NORTHCOM) to coordinate the provisioning and deployment of USGS geospatial data, products, services, and equipment. The GIRT will coordinate disposition of USGS staff in support of DHS response center activities as requested by DHS.

3.3.9 Remote Sensing Working Group

The GIRT will leverage partnerships with members of the Remote Sensing Working Group (RSWG) through the EROS Disaster Response Coordinators. The RSWG is an ad hoc event-based group that is formed as needed to help communicate and coordinate local, State, and Federal civil requirements, data acquisitions, and information delivery during an event response. The RSWG is convened and led by the EROS Disaster Response Coordinators and has voluntary membership from the local, State, and Federal response community.

3.3.10 Geospatial Product and Services Contracts (GPSC)

The GIRT will leverage partnerships with private data providers as necessary through utilization of the GPSC as a mechanism for aerial image or data product purchases as necessary to meet GIRT member requirements.

Appendix A: Sample Workflow

GIRT Support to Red River Flooding – 2011

Event: Red River 2011 – Pre-Event

USGS Water Science Centers have been deploying personnel to the field to bolster the stream gage network in preparation of potential spring flooding on the Red River. USGS project alerts from Water Science Centers provide USGS leadership and decision makers with observations and analysis of hydrologic situations as necessary.

USGS Geospatial Liaisons and EROS Data Center disaster response personnel participate on National Weather Service telecons related to the flood hazard outlook.

Based on analysis from USGS hydrologists, weather outlooks and requests for information from the DOI OEM, the USGS Deputy Director activates the USGS Hazard Response Executive Committee and convenes a meeting of the HREC to discuss the impending Red River Flooding event. At the conclusion of the HREC meeting, the GIRT chair is requested to activate the GIRT to support the HREC.

The GIRT chair notifies core and ad hoc members that the GIRT has been activated. Each member receives an invitation to the initial GIRT telecon for Red River flooding.

The GIRT chair convenes the initial meeting with GIRT members. The initial telecon includes the Bureau Emergency Management Coordinator, The Lead of the Bureau Storm Team, USGS liaisons, invited members from Science Centers, and EROS Disaster Response Coordinators. The team obtains situational awareness from appropriate staff members regarding the situation. Capabilities, requirements and delivery methods are discussed. The GIRT decides on the appropriate meeting schedule for pre- event discussions. Also, liaisons are requested to contact their collegues at the State and local level to identify unmet geospatial data requirements and coordinate delivery of requested geospatial information. In addition, the EROS Disaster Response Coordinators initiate the Remote Sensing Working Group (RSWG) telecons. The GIRT chair provides a GIRT report to the HREC as requested.

Event: Red River 2011 – During Event

The GIRT chair continues daily GIRT telecom meetings, including weekends. GIRT members and other participants continue to obtain and provide situational awareness of the event. Members are sharing post event imagery/geospatial requirements as well as providing the status of data collections and products. The GIRT Chair continues to participate in the HREC to obtain information and report out on GIRT activities.

Event: Red River 2011 – Post Event

After twelve days the flooding event is no longer in the response phase. The requests for assistance and requests for information coming to the GIRT can now be handled by the EROS HDDS team. The GIRT

decides to propose standing down based on this level of effort. The GIRT chair requests of the HREC that the GIRT stands down. The request is approved.

The GIRT chair notifies the GIRT membership and participants that the GIRT will stand down. The GIRT chair will continue to collect information as long as there is a need to report to the HREC.

Appendix B: Geospatial Information Response Team Points of Contact

Core Membership					
Event Role	**Name**	**Location**	**Office Phone**	**Cell Phone**	**E-Mail**
Geospatial Information Response Team Chair	Robert Bewley	Reston, VA	703-648-5660	571-318-3371	rbewley@usgs.gov
Emergency Management Coordinator	Steve Hammond	Reston, VA	703-648-5033	703-624-0824	sehammon@usgs.gov
Hazard Team Leads:					
Storm Response	Jim Stefanov	Columbia, MO	573-876-1889	573-999-4268	jestefan@usgs.gov
Flood Response	Robert Holmes	Rolla, MO	573-308-3581	573-465-0286	bholmes@usgs.gov
Earthquake Response	Bill Leith	Reston, VA	703-648-6786		wleith@usgs.gov
Volcano Response	Charlie Mandeville	Reston, VA	703-648-4773		cmandeville@usgs.gov
Volcano Response	Tom Murray	Anchorage, AK	907-786-7443		tlmurray@usgs.gov
Landslide Response-East	Francis Ashland	Reston, VA	703-648-6923		fashland@usgs.gov
Landslide Response-West	Rex Baum	Golden, CO	303-273-8610		baum@usgs.gov
Wildland Fire Response	Matt Rollins	Reston, VA	703-648-5861		mrollins@usgs.gov
Chemical & Biological Threats	Patti Bright	Reston, VA	703-648-4058	703-992-5073	pbright@usgs.gov
Water Quality	Donna Myers	Reston, VA	703-648-5012		dnmyers@usgs.gov
Natural Hazard Response Geospatial Data Delivery Staff:					
Physical Scientist	Mark Robson	Reston, VA	703-648-5956		lrobson@usgs.gov
Geospatial Analyst	Trent Berger	Reston, VA	703-648-5944		tberger@usgs.gov
USGS Liaison to US Northern Command	Sherry Durst	Denver, CO	303-236-5408 or 719-554-4363	720-201-9880	sldurst@usgs.gov
EROS Data Center:					
EROS Disaster Response Coordinator	Brenda Jones	Sioux Falls, SD	605-594-6503	605-321-3995	bkjones@usgs.gov
EROS Disaster Response Coordinator	Rynn Lamb	Sioux Falls, SD	605-594-6958	605-496-4925	lamb@usgs.gov
Land Remote Sensing:					
Land Remote Sensing Program Staff	Tom Cecere	Reston, VA	703-648-5551	571-278-6218	tcecere@usgs.gov
Chief, Policy, Plans and Analysis	Tim Stryker	Reston, VA	703-648-4610	703-648-5551	tstryker@usgs.gov
National Wetlands Research Laboratory:					

Science Response Vehicle Coordinator	Scott Wilson	Lafayette, LA	337-266-8644	337-258-5557	wilsons@usgs.gov
Event Specific Membership					
Geospatial Liaisons (See Liaison Contact List)	http://liaisons.usgs.gov/geospatial/documents/TNM_Partnership_User_ContactList.pdf				
National Geospatial Technical Operations Center:					
NGTOC Cartographer	Tim Saultz	Rolla, MO	573-308-3654	573-465-0286	tsaultz@usgs.gov
NGTOC Branch Chief	Larry Moore	Denver, CO	303-202-4019	720-237-6779	lmoore@usgs.gov
USGS Special Applications Science Center:					
Center Director	Tom Owens	Denver, CO	303-236-1464		tom_owens@usgs.gov
Physical Scientist	Beverly Friesen	Denver, CO	303-236-2887		bafriesen@usgs.gov
Regional Director Offices:					
Northeast	Dave Russ	Reston, VA	703-648-6660		druss@usgs.gov
Southeast	Jess Weaver	Norcross, GA	678-924-6609		jdweaver@usgs.gov
Midwest	Leon Carl	Ann Arbor, MI	734-214-7207		lcarl@usgs.gov
Southwest	Randall Updike	Denver, CO	303-236-5440		updike@usgs.gov
Northwest	Max Ethridge (Acting)	Seattle, WA	206-220-4600		methridge@usgs.gov
Pacific	Eric Reichard (Acting)	Sacramento, CA	619-666-0638		egreich@usgs.gov
Alaska	Leslie Holland-Bartels	Anchorage, AK	907-786-7055		lholland-bartels@usgs.gov

Appendix C: Glossary of Acronyms

DHS - Department of Homeland Security
DOI – Department of the Interior
EMC – Emergency Management Coordinator
EPA – Environmental Protection Agency
EROS – Earth Resources Observations and Science Center
FEMA – Federal Emergency Management Agency
GIRT – Geospatial Information Response Team
GPSC – Geospatial Product and Services Contracts
HDDS – Hazard Data Distribution System
HREC – Hazard Response Executive Committee
LRS – Land Remote Sensing
NGA – National Geospatial-Intelligence Agency
NGB- National Guard Bureau
NGP – National Geospatial Program
NGTOC – National Geospatial Technical Operations Center
NHMA – Natural Hazard Mission Area
NHRGDD – Natural Hazards Response and Geospatial Data Delivery
NOAA – National Oceanic and Atmospheric Administration
NORTHCOM - Northern Command
NWRC – National Wetlands Research Center
RSWG – Remote Sensing Working Group
SASC – Special Applications Science Center
SOP – Standard Operating Procedures
SRV – Science Response Vehicle, National Wetlands Research Laboratory
USDA – U.S. Department of Agriculture
USGS – United States Geological Survey

Appendix D: USGS Geographic Regions